SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR SYSTEM PARTITIONING OF A RECONFIGURABLE LOGIC DEVICE

ABSTRACT OF THE DISCLOSURE

In accordance with the invention, a system for automatically partitioning a behavioral description of an electronic system into the optimal configuration of hardware and software is provided. The system receives a behavioral description of the electronic system and determines the optimal required functionality between hardware and software and partitions that functionality while varying the parameters (e.g. size or power) of the hardware and/or software. Thus, for instance, the hardware and the processors for the software can be formed on a reconfigurable logic device, each being no bigger than is necessary to form the desired functions. The codesign system outputs a description of the required processors, machine code to run on the processors, and a net list or register transfer level description of the necessary hardware. It is possible for the user to write some parts of the description of the system at register transfer level to give closer control over the operation of the system, and the user can specify the processor or processors to be used, and can change, for instance, the partitioner, compilers or speed estimators used in the codesign system. The automatic partitioning is formed by using a genetic algorithm which estimates the performance of randomly generated different partitions and selects an optimal one of them.